UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

FISHER-ROSEMOUNT SYSTEMS, INC. and EMERSON PROCESS MANAGEMENT LLLP,	§	
Plaintiffs,	§	
VS.	§	**CIVIL ACTION NO. 4:18-CV-00178**
ABB LTD, ABB, INC., ABB AB, and ABB AUTOMATION GMBH,	§	
Defendants.	§	

MEMORANDUM & ORDER

Before the Court are the claim construction briefs filed by both parties in this patent infringement suit. On November 6, 2019, the Court held a hearing, in accordance with *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996), during which the parties presented argument in support of their proposed constructions. After considering the arguments of counsel, the evidence, and the applicable law, the Court finds that the disputed claims of the patents-in-suit should be construed as set forth herein.

I. BACKGROUND

Plaintiff Fisher-Rosemount Systems, Inc. is the owner of U.S. Patent No. 8,332,567 (the "'567 patent"); U.S. Patent No. 9,411,769[1] (the "'769 patent"); and U.S. Patent No. 7,684,875 (the "'875 patent"). Fisher-Rosemount Systems, Inc. and Emerson Process Management LLLP

[1]The '769 patent is a continuation-in-part of Application No. 14/170,072, filed on Jan. 31, 2014, which is a continuation of Application No. 13/709,974, filed on Dec. 10, 2012, now Pat. No. 8,762,618, which is a continuation of Application No. 11/533,259, filed on Sept. 19, 2006, now the '567 patent.

(collectively, "Plaintiffs") brought suit against Defendants ABB, Inc. et al. (the "Defendant") for infringement of these patents.

The patents at issue relate generally to process control systems. These systems, which are used in a variety of industries such as chemical, pharmaceutical, and wastewater treatment, oversee devices performing a process that creates or changes something by performing that process; for instance, in oil refining, process control systems oversee the machinery and devices that transform crude oil into gasoline. (Doc. No. 137 at 2). A process control system is generally comprised of three groups of electronic devices: controllers, input/output ("I/O") devices, and field devices. Field devices (e.g., valves or sensors) send information about process activities to controllers through the I/O system, and the controller in turn sends information to other field devices to make adjustments to process activities.

The '567 and '769 patents relate to an apparatus and methods for electronically—rather than physically through wires—marshalling signals from field devices to a process controller within the process control system. This electronic marshalling is accomplished through termination modules, which are removably coupled to a base and housed in a marshalling cabinet. There is a one-to-one correspondence between the number of termination modules and field devices. The '875 patent builds on these patents and explains an electronic marshalling process that automatically configures these connections between controllers and field devices using "device tags."

The '567 patent contains 25 claims, the '769 patent contains 19 claims, and the '875 patent contains 23 claims. Because the disputed terms and phrases occur throughout these claims, the Court will not reproduce each claim containing a disputed term.

II. APPLICABLE LAW

A. Claim construction

In patent law, "the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (citation omitted). Claim construction is a matter of law, and thus the task of determining the proper construction of the disputed terms lies with the Court. *Markman*, 417 U.S. at 385.

To determine the meaning of claims, courts begin by considering the intrinsic evidence, which includes the claims themselves, the specifications, and the prosecution history. *Phillips*, 415 F.3d at 1313. Courts look first to the language of the asserted claim itself. *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir. 1998). It is well established that words of a claim "are generally given their ordinary and customary meaning," which is defined as the "meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Phillips*, 415 F.3d at 1312–13 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). A district court is not obligated to construe terms with ordinary meanings, lest trial courts be inundated with requests to parse the meaning of every word in the asserted claims. *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008); *see also Mentor H/S, Inc. v. Med. Device All., Inc.*, 244 F.3d 1365, 1380 (Fed. Cir. 2001) (finding no error in the lower court's refusal to construe "irrigating" and "frictional heat"). The exceptions to the ordinary meaning rule are (1) when the patent applicant acts as his own lexicographer and explicitly defines the term, and (2) when the specification "reveal[s] an intentional disclaimer, or disavowal, of claim scope by the inventor." *Phillips*, 415 F.3d at 1315-16.

Claims, however, "must be read in view of the specification of which they are a part."

Phillips, 415 F.3d at 1315 (quoting *Markman*, 52 F.3d at 979). The specification, which describes and illustrates the invention in detail, "is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Id.* (quoting *Vitronics*, 90 F.3d at 1582).

Courts may also consider the prosecution history, which provides evidence of how the Patent and Trademark Office (the "PTO") and the inventor understood the patent. *Phillips*, 415 F.3d at 1317. However, "because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes." *Phillips*, 415 F.3d at 1317. Still, a "patentee may limit the meaning of a claim term by making a clear and unmistakable disavowal of scope during prosecution." *Purdue Pharma L.P. v. Endo Pharms., Inc.*, 438 F.3d 1123, 1136 (Fed. Cir. 2006); *see Cordis Corp. v. Bos. Sci. Corp.*, 561 F.3d 1319, 1329 (Fed. Cir. 2009). A patentee could do so by, for instance, clearly characterizing the invention in a way to avoid prior art. *See, e.g.*, *Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1349 (Fed. Cir. 2004) (limiting the term "transmitting" to require direct transmission over a telephone line because the patentee was found to have disclaimed transmission over a packet-switched network by stating during prosecution that the invention transmits over a standard telephone line). However, "[w]here an applicant's statements are amenable to multiple reasonable interpretations, they cannot be deemed clear and unmistakable." *3M Innovative Props. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1326 (Fed. Cir. 2013).

In most circumstances, analysis of the intrinsic evidence alone will resolve claim construction disputes. *Vitronics*, 90 F.3d at 1583. However, if the intrinsic evidence does not resolve ambiguities, a court may also consider extrinsic evidence such as expert witness testimony,

dictionary definitions, and legal treatises. *Id.* While extrinsic evidence "can shed useful light on the relevant art," it is "less significant than the intrinsic record in determining 'the legally operative meaning of claim language.'" *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004).

B. Indefiniteness

A patent is presumed to be valid. 35 U.S.C. § 282. A claim is invalid for indefiniteness if it "fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2010). The party challenging the validity of a claim must prove indefiniteness by clear and convincing evidence. *Takeda Pharm. Co. v. Zydus Pharms. USA, Inc.*, 743 F.3d 1359, 1366 (Fed. Cir. 2014); *Apotex USA, Inc. v. Merck & Co.*, 254 F.3d 1031, 1036 (Fed. Cir. 2001); *WesternGeco LLC v. ION Geophysical Corp.*, 876 F. Supp. 2d 857, 871 (S.D. Tex. 2012).

C. Means-plus-function claims

A claim may also be deemed invalid for indefiniteness if it is deemed to be a means-plus-function claim that insufficiently connotes structure under 35 U.S.C. § 112(f). This Section provides that "[a]n element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." 35 U.S.C. 112(f). Such "means-plus-function" claims allow a patentee to describe an element of the invention by the function it serves, rather than describing the item or element to be used—that is, what it *does* rather than what it *is*. *Warner-Jenkins Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 27 (1997).

If a court determines that the means-plus-function analysis under § 112(f) governs, the

court applies a two-step process: it must decide what the claimed function is, and then determine whether a structure corresponding to that function is disclosed in the specification. *Welker Bearing Co. v. PHD, Inc.*, 550 F.3d 1090, 1097 (Fed. Cir. 2008). If the patent does not contain an adequate disclosure of the structure that corresponds to the claim elements, the patentee will have "failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112." *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1382 (Fed. Cir. 2009). Such a failure results in invalidity for indefiniteness. *WesternGeco*, 876 F. Supp. 2d at 867.

In determining whether a claim is drafted in means-plus-function format, and thus whether § 112(f) applies, courts have focused on the patent's use of the word "means." *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015). If the claim does not contain the word "means," courts apply a "rebuttable presumption that the term conveys sufficiently definite structure and is not subject to 112[(f)]." *MTD Prods. Inc. v. Iancu*, 933 F.3d 1336, 1341 (Fed. Cir. 2019). This presumption can be rebutted by demonstrating "that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function." *Id.* (quoting *Williamson*, 792 F.3d at 1348). One way to demonstrate that a claim limitation fails to recite sufficiently definite structure is to show that the "claim limitation uses a . . . nonce word that can operate as a substitute for 'means.'" *Id.* Courts have held that nonce words include terms like "module," "mechanism," "element," and "device." *Id.* (quoting *Williamson*, 792 F.3d at 1348). Thus, while the presence or absence of "means" is informative, the "essential inquiry is . . . whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure." *Id.* The ultimate question is whether "the claim language, read in light of the specification, recites sufficiently definite structure to avoid § 112[(f)]." *Id.* (quoting *Media Rights Techs. Inc. v. Capital*

One Fin. Corp., 800 F.3d 1366, 1372 (Fed. Cir. 2015)).

III. ANALYSIS

A. CONSTRUCTION OF AGREED TERMS

1. "the input / output device is programmed with the tag by an installer of the process control device"

The parties agreed at the *Markman* hearing that the scope of this claim is that the same person that programs the input/output device with the tag is also the installer of the process control device. (Doc. No. 187 at 72:13–18). The Court adopts this construction.

B. CONSTRUCTION OF DISPUTED TERMS

1. "a base [comprising/having] a first physical interface"

This term appears in claims 1, 9, and 19 of the '567 patent, and claims 1 and 15 of the '769 patent. Defendant argues that the term should be construed as "[t]he first physical interface is an integral part of, and not removable from, the base." Plaintiffs suggest that no construction is necessary for this term, as it carries its plain and ordinary meaning. The Court agrees with Plaintiffs.

The core dispute is whether the "first physical interface" is removable from the base. Beginning with the claims themselves, the claims are silent on the issue of removability. Defendant contends that "comprising" and "having" are terms that mean essential and thus unremovable. However, a person of ordinary skill in the art would not understand these terms to imply a structural limitation requiring a unitary construction between two elements. *See, e.g., Microlinc, LLC v. Int'l Corp.*, 2013 WL 2471551, at *10 (E.D. Tex. June 7, 2013) ("[A]s a general matter of patent claim construction, 'includes' and 'comprising' are open-ended terms which are well understood to mean 'including but not limited to.'").

The Court thus turns to the claims "read in view of the specification." *Phillips*, 415 F.3d at 1315. The specification and the embodiment at Figure 4 teach that possible embodiments of a "first physical interface" are a termination screw or a socket. *See* '567 patent at 14:16-20 ("The base 402 is provided with termination screws 406 (e.g., a field device interface) to tie down or secure conductive communication media . . . from the field device 112a."); *id.* at 14:27-28 ("[O]ne field device interface (e.g., the termination screws 406)."); *id.* at 14:23-26 ("In other example implementations, the base 402 may be provided with any other suitable type of field device interface (e.g., a socket) instead of the termination screws 406."). A person of ordinary skill in the art would know that at least one of the embodiments, a termination screw, is removable from the base and accordingly that the first physical interface may be removable.

Defendant nonetheless argues that, in the context of the patent, the termination screws cannot alone be the first physical interface because the first physical interface is the mechanism that enables communications from field devices to traverse the base and communicate with the removably attachable module, and a screw alone cannot accomplish such functions. *See* '567 patent at 28:40-41 ("[A] base comprising: a first physical interface to be communicatively coupled to different types of field devices and exchange communications with one or more of the field devices."). Rather, according to Defendant, the first physical interface must include structures, like an electric contact on the base and wiring within the base that can receive and pass signals through the base. In this way, the first physical interface and the base must be unitary. The Court rejects this construction, which reads a limitation that was not clearly intended by the inventor and indeed contradicts the language of the specification on its face. *Cf. Tesco Corp. v. Weatherford Int'l Inc.*, 722 F. Supp. 2d 737, 740 (2010) (explaining that, in cases where the specification reveals an "intentional disclaimer, or disavowal, of claim scope by the inventor . . . the inventor's intention

as expressed in the specification, is regarded as dispositive."). Moreover, contrary to Defendant's contention, the role of the termination screw as taught in the specification is consistent with the claims. *See* '567 patent at 14:20-24 (teaching that the termination screws "*are communicatively coupled* to one or more of the contacts 404 to enable communicating information between the termination module 124a and the field device 112a") (emphasis added). The claims read in light of the specification therefore include no limitation that the first physical interface be unremovable from the base.

The Court further rejects Defendant's separate contention that Plaintiffs disclaimed a first physical interface that is removable from the base during patent prosecution. To prove that a patentee disclaimed specific meanings during prosecution, the party seeking to invoke prosecution history disclaimer "bears the burden of proving the existence of a 'clear and unmistakable' disclaimer that would have been evidence to one skilled in the art." *Mass. Inst. of Tech. v. Shire Pharm., Inc.*, 839 F.3d 1111, 1119 (Fed. Cir. 2016). Defendant contends that, during prosecution, Plaintiffs distinguished prior art references to "Odom et al." and "Rajchel." Defendant's reliance on this prosecution history is inapposite, however, as it does not address the present dispute: whether or not the first physical interface must be integral. During prosecution, Plaintiffs distinguished their patent by explaining that, whereas in Rajchel the *module* interfaces with external devices, in Plaintiffs' patent it is the *base* that interfaces with external devices. (Doc. No. 138-1 at 365) ("Rajchel describes that the interchangeable module . . . can be provided with interfaces to connect to external devices. . . . But Rajchel does not teach or suggest a base having a first field device interface to be communicatively coupled to different types of field devices."). These prosecution history references do not address whether the first physical interface can be *removed* from the *base*. The prosecution history as to the prior art reference, Odom et al., similarly

misses the mark. During prosecution, Plaintiffs explained that Odom et al. describes a module connecting directly to sensors and devices rather than a base that is coupled to a field device through a first field device interface. Odom et al. says nothing about whether the first physical interface is unremovable from the base. (Doc. No. 138-1 at 365) ("Odom et al. do not teach or suggest a module comprising a connector to communicatively couple the module to a base, in which the base comprises a first field device interface to be communicatively coupled to different types of field devices. Instead, Odom et al. describe that the measurement module . . . connects directly to sensors and devices through its terminals."). In sum, the portions of the prosecution history upon which Defendant relies do not constitute clear and unmistakable disavowal.

The Court thus rejects Defendant's argument and determines that no construction of this term is necessary.

2. "module"

This term is used in claims 1, 9, 10, and 19 of the '567 patent, and claims 1, 13, and 15 of the '769 patent. Defendant proposes the construction, "a component of an assembly." Plaintiffs argue that the term contemplates a more particular meaning and should be construed as "a unit to electronically marshal information."

While the term "modules" has many meanings in different industries, the Court agrees with Plaintiffs that, in the context of the patents at issue, a person of ordinary skill in the art would understand that the term carries a narrow meaning. Indeed, the '567 patent specification teaches that modules, also referred to as "termination modules," are units housed within a marshalling cabinet that are "configured to marshal information associated with the field devices 112a-c and 126a-c in the process area 114." '567 patent at 7:17-19; *see also id.* at 4:11-15 ("The marshalling cabinet includes a plurality of termination modules used to marshal, organize, or route signals from

the field devices to one or more I/O cards communicatively coupled to the controllers."). A person of ordinary skill in the art would know, based on the specification, that a module electronically marshals information. Defendant counters by arguing that a module does not *itself* perform the marshaling function; rather, termination modules are arranged in a marshalling cabinet, and it is the *cabinet as a whole* that electronically marshals information. *See* '567 patent at 7:14-27; *id.* at 4:9-15. The Court rejects this argument. A skilled artisan would understand that the cabinet only houses the modules; an understanding bolstered by the fact that the specification teaches in multiple instances that each module is individually configured to marshal information. *See, e.g.*, '567 patent at 5:29-33 ("Each of the termination modules can then extract or depacketize respective field device information from the packetized communications received from a respective I/O card and communicate the field device information to a respective field device."); *id.* at 4:61-5:1 ("The termination modules are configured to receive field device information from the field devices via the field device buses and communicate the field device information to the I/O cards.").

In light of the specification's teachings, the Court rejects Defendant's separate contention that its proposed construction is the correct one because Plaintiffs' construction impermissibly reads additional functions into the claim where the claim language is silent. Defendant argues that while the claims explicitly specify elements that a module must have—for instance, it must be "removably attached from the base"—the claims conspicuously do not state that a single module alone must be able to electronically marshal information. However, "claims must be read in view of the specification, of which they are a part." *Phillips*, 415 F.3d at 1315. And here, as discussed *supra*, the specification teaches that modules electronically marshal information.

Accordingly, the Court adopts the construction, "a unit to electronically marshal information."

3. "any of the different types of field devices"

This term is used in claim 1 of the '567 patent, which provides in relevant part that a module includes "a processor to be . . . configured to encode first information from any of the different types of field devices for communication via the bus." Plaintiffs argue that the term should be construed as "one or more of the different types of field devices." Defendant argues that the term should be construed as "every different type of field device."

The parties disagree over whether "any" means "one or more" or "every." At the *Markman* hearing, Defendant clarified that, under its construction, a module need not in fact be configured to interface with every type of field device simultaneously, but it must be *capable* of interfacing with every type of field device. Accordingly, the core dispute is whether a module must be capable of interfacing with only "one or more" field devices or with "every" field device. Plaintiffs argue for the former construction, and the Court agrees.

The plain and ordinary meaning of "any" most readily means "one or more," and the intrinsic evidence supports this plain meaning. Namely, the '567 patent specification explicitly teaches that certain modules are configured to communicate with *specific* types of field devices. *See* '567 patent at 7:55-64 ("[An example termination module] may be configured to communicate with *a respective one of the field devices* 112a-c and 116a-c using a different data type."). By contrast, the patent nowhere teaches that each module is capable of communicating with *every* possible field type.

Defendant concedes that the '567 patent describes different modules with different capabilities, including those discussed *supra* that are specifically assigned to communicate with a specific type of field device. Defendant contends, however, that those embodiments are not the ones covered by claim 1; rather, according to Defendant, claim 1 covers only the embodiment that

teaches that termination modules are "configured to be communicatively coupled to a *plurality* of field devices." '567 patent at 12:51-54 (emphasis added); *see also id.* at 7:52-55 ("[A] termination module can be configured to communicate wirelessly with a *plurality* of field devices using a wireless mesh network."). The Court rejects this argument. Even assuming that Defendant is correct that claim 1 encompasses only this embodiment, Defendant's argument requires the Court to construe a "plurality" to mean "every." But this belies the ordinary meaning of the term. Under the ordinary meaning of plurality, that the modules described in this embodiment are coupled to a *plurality* of field devices does not mean that they are capable of being configured to *every* type of field device. Moreover, a person of ordinary skill in the art would understand that such capability would be impossible in the context of the '567 patent. This is because the patent provides that field devices use different data types, such as analog and digital signals. *See* '567 patent at 7:56-64. However, as one skilled in the art would understand, a module configured to receive an analog signal would not understand a digital signal and thus would be unable to communicate with a field device transmitting a digital signal. *See, e.g.*, (Doc. No. 146-5 at ¶49). While a module configured to encode digital information may be capable of communicating with multiple types of field devices that transmit digital signals, it cannot communicate with devices that transmit analog signals—that is, while it may communicate with a *plurality* of field devices, it cannot communicate with *every type* of field device. The Court declines to deviate from the ordinary meaning of the claim term, particularly where the alternate construction "would impermissibly render the claim[] inoperable." *Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 904 F.3d 965, 972 (Fed. Cir. 2018).

The Court therefore adopts the construction "one or more of the different types of field devices."

4. "communication protocol"

This term is used in claims 1, 2, 9, and 17 of the '567 patent, and claims 1, 2, 9, 13, 15, and 18 of the '769 patent. Defendant's proposed construction for this term is "a set of rules and procedures (i.e., a language) by which complex digital or combined analog/digital signal types are transmitted and received." Plaintiffs argue that the Court need not construe this term, as it carries its plain and ordinary meaning. In the alternative, Plaintiffs argue that, if a construction is necessary, the term should be construed as "a set of rules that enable devices to communicate with one another."

The parties agree that a communication protocol is a set of rules governing the communication of messages such as complex digital or combined analog/digital signals. *See* (Doc. No. 187 at 75:24-76:4). The dispute lies in whether a communication protocol also encompasses simple analog measurements, such as a current measurement or a binary ON/OFF command conveyed from certain types of basic field devices. Defendant contends that such simple analog measurements do not require a communication protocol and are thus excluded from the claim term, while Plaintiffs contend that they are included. The Court agrees with Plaintiffs.

The intrinsic and extrinsic record support this construction. The patent specifically notes that the invention anticipates the use of analog protocols as an example of a communication protocol. The '567 patent states that "[p]rocess control systems . . . typically include one or more process controllers communicatively coupled to . . . field devices configured to communicate *via analog*, digital, and combined analog/digital communication protocols." '567 patent at 1:15-22 (emphasis added); *see also id.* at 6:51-65 ("In some example implementations, the field devices . . . can communicate information using analog communications or discrete communications instead of digital communications. In addition, the communication protocols can

be used to communicate information associated with different data types."). Indeed, Plaintiffs' expert, who is skilled in the art, affirms that "a [person of ordinary skill in the art] would understand that all types of electrical communications, including analog communications, require a communication protocol." (Doc. No. 146-5 at ¶¶57-60).

Given this customary meaning of "communication protocol," the Court rejects Defendant's two arguments for reading in limitations to the claims at issue. Defendant first argues that, throughout the description of the '567 patent, Plaintiffs use the phrase "communication protocol" exclusively to describe complex digital communications or combined analog/digital communications. *See* '567 patent at 17:30-18:65; *id.* at 1:42-55; *id.* at 6:51-65. As discussed *supra*, this argument is unpersuasive.

Defendant further argues that Plaintiffs limited the claim scope during patent prosecution to exclude analog communication from communication protocols to circumvent the prior art. *See* (Doc. No. 138 at 4-5). A patentee may not use claim construction to recapture subject matter that it disavowed during prosecution. *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995). Here, however, there was no "clear and unmistakable surrender" as required for disavowal. *Cordis Corp.*, 561 F.3d at 1329. "Where an applicant's statements are amenable to multiple reasonable interpretations, they cannot be deemed clear and unmistakable." *3M Innovative Props. Co.*, 725 F.3d at 1326. Defendant claims that Plaintiffs removed the language, "[a first termination interface to] receive first information from a field device using a first communication protocol and *further configured* to receive analog encoded information and digital encoded information," (Doc. No. 138-1 at 296) (emphasis added), and replaced it with "a first termination interface to be communicatively coupled to different types of field devices and exchange communications with the field devices via a plurality of different communication

protocols" (Doc. No. 138-1 at 296). However, this amendment merely shows that Plaintiffs disclaimed a first termination interface that was configured to receive analog encoded information and digital encoded information; it does not clearly and unmistakably concede that a communication protocol does not encompass an analog signal.

A person of ordinary skill in the art would understand a "communication protocol" in the context of the '567 and '769 patents to encompass all types of electrical communications, including simple analog signals, and nothing in the intrinsic record clearly demonstrates that Plaintiffs disclaimed this claim scope. Accordingly, the Court declines to read in the limitations proposed by Defendant's construction. The Court adopts the construction, "a set of rules that enable devices to communicate with one another."

5. "[Communication / communicate / communicating] via a bus using [a / the] [first / second / third] communication protocol"

This term is used in claims 1, 9, 17, and 19 of the '567 patent, and claims 1, 15, and 18 of the '769 patent. Defendant's proposed construction for this term is "signals formatted according to the first/second/third communication protocol are transmitted and received through the bus." Plaintiffs argue that the Court need not construe this term, as it carries its plain and ordinary meaning. The Court agrees with Plaintiffs.

The plain and ordinary meaning of this term is readily apparent when read in context of the relevant claims. Although this phrase appears in numerous claims, claim 1 of the '567 patent is representative and provides, in relevant part, that a module includes "a processor to be . . . configured to encode first information from any of the different types of field devices for communication via the bus using a second communication protocol." The parties appear to dispute what "using a second communication protocol" means. Defendant argues that the claim should be

construed to mean that the processor is configured to use a second communication protocol *to encode information* which is then transmitted via the bus. However, given the construction of a communication protocol and the claim language on its face, the Court determines that this claim is more readily construed as providing for a processor that is configured to use a second communication protocol *for communication via the bus* of the encoded information.[2] As the Court determined *supra*, a communication protocol is a set of rules that enable devices to communicate with one another. A person of ordinary skill in the art would understand that a communication protocol is not a set of rules to encode information, but rather is a set of rules used to facilitate communication via the bus such that the electrical messages on the bus have meaning to all devices connected to the bus. *See also* '567 patent at 28:40-45 (providing that a base comprises "a first physical interface to . . . exchange communications with . . . field devices via a plurality of different communication protocols").

This term carries its plain and ordinary meaning and thus no construction is necessary.

6. "query[ing] based on the tag obtained from the input/output device a database"

Claims 1, 7–10, 13–16, and 21–23 of the '875 patent each state in part, "querying based on the tag obtained from the input/output device a database of process control routines implemented by the process controller to identify a process control routine." Defendant contends that the claim term should be construed as "the tag obtained from the input/output device is the query to the database." Plaintiffs argue that the Court need not construe this term, as it carries its plain and ordinary meaning.

[2]In light of Plaintiffs' opposition to Defendant's use of "signals formatted" in its proposed construction, Defendant in its response brief and at the *Markman* hearing clarified that its claim construction position would remain the same whether its proposed construction used the term "signals formatted" or "signals encoded." *See* (Doc. No. 175 at 15); (Doc. No. 187 at 91:21-25).

The parties dispute whether "based on" means that the query "is" the tag. Defendant argues that the tag used in the claim database query must be the one obtained from the input/output device, rather than an unrelated tag obtained from some other device or source.[3] Defendant accordingly urges the Court to adopt a construction stating that the query *is* the tag obtained from the input/output device, rather than the query is *based on* that tag. Plaintiffs counter that replacing "based on" with "is" is too narrow a construction that would render the database search inoperable. As Plaintiffs argue and their expert explains, one with ordinary skill in the art would understand that a database query typically includes more than simply the term being searched—here, the tag—but also additional items to guide the search such as a general location in the database to search and a command requesting the query. (Doc. No. 146-5 at ¶102–04).

The Court determines that the plain and ordinary meaning of "based on" is consistent with both parties' positions. As Defendant contends, a person of ordinary skill in the art would understand that these claims denote that the tag obtained from the I/O device forms the basis or foundation for the query; "based on" in this sense precludes using in the database query an unrelated tag obtained from a source other than the relevant I/O device. *See* '875 patent at 3:13–22; *id.* at Fig. 4; *id.* at 12:29–54 (explaining an example process in which a configuration application compares the device tags of sensed field devices to device tags previously configured to control modules). On the other hand, as Plaintiffs argue, the plain and ordinary meaning of "based on" is not so narrow as to require that the tag and only the tag may constitute the database query, which Defendant's proposed construction seems to suggest. *See* (Doc. No. 144 at 22)

[3]In its opening brief, Defendant explains its concern that Plaintiffs' infringement position adopts an overbroad interpretation of this claim term. According to Defendant, Plaintiffs allege that the relevant input/output device in Defendant's invention is Defendant's Signal Conditional Module ("SCM"), but Plaintiffs then contend that the alleged "tag" used in Defendant's infringing database query comes from a source that is *not* the SCM device. (Doc. No. 144 at 22–23).

("[T]he tag obtained from the input/output device *is* the query to the database.") (emphasis added). As Plaintiffs' expert explained, one of ordinary skill in the art would understand that a database search generally also includes additional guidance elements, such as where in the database to search, that provide the necessary information to actually run the database search. The Court accordingly rejects Defendant's proposed construction, which reads in this limitation that is unsupported by the intrinsic and extrinsic record.[4]

This term carries its plain and ordinary meaning and thus no construction is necessary.

7. "when the obtained tag matches the second tag"

Claims 7, 13, and 21 of the '875 patent recite that coupling occurs "when the obtained tag matches the second tag." Defendant's proposed construction for this term is "the obtained tag and the second tag are identical." Plaintiffs argue that the Court need not construe this term, as it carries its plain and ordinary meaning.

The core dispute is over the meaning of "matches." At the outset, the Court acknowledges that the term carries an inherent ambiguity, namely, whether elements must be identical to one another to constitute a match. The language of the claim or the specification, always the starting point when construing claim terms, is silent as to whether the tags must be identical. Turning to the extrinsic evidence, dictionary definitions similarly do little to clarify the ambiguity. Defendant relies on a dictionary definition of "match" that provides, "a person or thing that is an exact counterpart of another." *See* (Doc. No. 144 at 27) (citing *Match*, Webster's Unabridged Dictionary (2d ed. 2001)). However, there are many dictionary definitions of "match" that do not equate to "identical." *See, e.g.*, (Doc. No. 146-34 at 4) (*Match*, Wester's Unabridged Dictionary (2d ed.

[4]Indeed, Defendant appears to concede that the obtained tag need not itself constitute the entire query, stating in its response brief that its proposed construction "does not preclude the database query from containing elements *in addition* to the tag obtained from the I/O device." (Doc. No. 175 at 17).

2001) ("1. a person or thing that equals or resembles another in some respect.")). And, of course, the primary inquiry the Court must determine is how a person of ordinary skill in the art would understand the claim term "in the context of the particular claim in which the disputed term appears" and "in the context of the entire patent." *Phillips*, 415 F.3d at 1313; *see also Dana Corp. v. Am. Axle & Mfg. Inc.*, 110 Fed. App'x 871, 877 (Fed. Cir. 2004). To this end, the Court notes that, according to Plaintiffs' expert, who is of ordinary skill in the art, one such skilled artisan would understand that in the context of the patent a partial match—that is, when most but not all elements of a tag are the same—can still identify a match. *See* (Doc. No. 146-5 at ¶118). In other words, a tag can identify a specific device even if it is not identical to the second tag; "matches" in this way more closely aligns with identifies.

Defendant refutes the possibility of partial matching by citing to Figure 2 of the '875 patent, which contains the two similar tags "TT-101" and "TY-101." *See* '875 patent at Fig. 2. Defendant contends that, given the similarity of these two device tags, which share five of six characters, the claim terms must require identical matching lest the tag matching process be rendered inoperable. The Court disagrees that Figure 2 disproves that tags may be deemed to match even if they are not identical. Figure 2 does not foreclose the possibility that, for instance, "TT_101" and "TT-101" may match while "TT-101" and "TY-101" do not. Moreover, Defendant does not cite to any evidence in the record, intrinsic or extrinsic, that requires identical matching.

With this in mind, and in light of the intrinsic record's silence as to whether "matches" means "identical," the Court determines that a person of ordinary skill in the art would understand that matches more closely aligns with *identifies* rather than *identical*. The Court accordingly adopts the construction "when the obtained tag identifies the second tag."

C. CONSTRUCTION OF ALLEGED INDEFINITE TERMS

Defendant contends that ten claim terms are invalid for indefiniteness. Because patents are presumed to be valid, Defendant bears the burden of proving that each of these terms is indefinite by clear and convincing evidence. *See Takeda Pharm. Co.*, 743 F.3d at 1366.

1. "fieldbus protocol"

This term appears in claims 2 and 18 of the '769 patent. Defendant contends that the term is indefinite. Plaintiffs contend that the term is sufficiently definite and that no construction is needed. The Court agrees with Plaintiffs.

Defendants argues that this term is indefinite because the '769 patent specification neither defines a "fieldbus protocol" nor explains how such protocols might differ from, for example, a "communication protocol." (Doc. No. 144 at 18). However, "patents are not addressed to lawyers, or even to the public generally, but rather to those skilled in the relevant art." *Nautilus, Inc.*, 572 U.S. at 909 (internal quotation marks omitted); *see Carnegie Steel Co. v. Cambria Iron Co.*, 185 U.S. 403, 437 (1902) ("[A]ny description which is sufficient to apprise [steel manufactures] in the language of the art of the definite feature of the invention, and to serve as a warning to others of what the patent claims as a monopoly, is sufficiently definite to sustain the patent."). To this end, the Supreme Court has recognized that, where a patent is interspersed with technical terms and terms of art, courts "will need to look beyond the patent's intrinsic evidence and to consult extrinsic evidence in order to understand . . . the meaning of a term in the relevant art during the relevant time period." *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015). Indeed, such testimony may be "indispensable" to determining what meaning a term of art had to a person of ordinary skill in the art at the time of the invention. *Id.* (quoting *Seymour v. Osborne*, 11 Wall. 516, 546 (1871)). Once a court makes this subsidiary factual finding, it must then conduct a legal

analysis and reach a legal determination as to whether one of ordinary skill in the art "would ascribe that same meaning to that term *in the context of the specific patent claim under review*." *Id.*; *see also Markman*, 517 U.S. at 388 (explaining that, while courts may examine experts to explain technical terms, it is ultimately the responsibility of the court to determine the legal construction of the patent terms in light of that information).

In light of the technical nature of this disputed term, the Court first turns to testimony from those skilled in the art to determine what meaning the term held in the industry at the time of the invention. *See Teva*, 135 S. Ct. at 841. Only Plaintiffs have provided such an expert. According to this expert, a "fieldbus protocol" is a term of art that denotes a "specific type of communication protocol used to communicate on a field bus." (Doc. No. 146-5 at ¶66). The term "would be instantly recognized by a POSITA."[5] *Id.* at ¶67.

One of ordinary skill in the art would ascribe that same meaning to the disputed claims in the context of the patent at issue. *See Teva*, 135 S. Ct. at 841. The specification explains fieldbus protocols by providing examples of fieldbus protocols, such as "Profibus PA" and "FF-H1." *See, e.g.*, '769 patent at 30:66-31:1 ("[B]oth Profibus PA and FF-H1 are protocols associated with the family of fieldbus protocols."); *id.* at 32:24-30. Such examples provide guidance to those skilled in the art and thus weigh against a finding of indefiniteness. *See Sonix Tech. Co. v. Publ'n Int'l, Ltd.*, 844 F.3d 1370, 1378 (Fed. Cir. 2017) (explaining that examples of noninterfering structures and the procedures for selecting them were examples and procedures that "provided guidance and points of comparison for skilled artisans"). Defendant bears the burden of proving indefiniteness

[5]At the Markman hearing, Plaintiffs presented a page for Defendant's website discussing various fieldbus protocols. (Doc. No. 187 at 136:15-25). The Court notes that while this webpage is not part of the claim construction record and the Court does not rely on it in reaching its determination on the definiteness of this term, such use bolsters the term's status as a well-known term of art in the industry.

by clear and convincing evidence, and here, in light of the specification, it has failed to prove that the claim term would not inform a one of ordinary skill in the art about the scope of the claim.

Accordingly, this term is not indefinite and no construction is needed.

2. "tunnel protocol"

This term appears in claim 9 of the '769 patent. Defendant contends that this term is indefinite. Plaintiffs contend that "tunnel protocol" is a term of art and thus need not be explained in the patent. Alternatively, Plaintiffs suggest the construction "a set of rules that enable devices to communicate over a network where one protocol is wrapped into a message of another protocol."

As with the previous disputed term, the Court consults extrinsic evidence in order to understand the meaning of the term in the relevant art. *See Teva*, 135 S. Ct. at 841. Plaintiffs' expert states that a person of ordinary skill in the art would understand that a tunnel protocol "allows communication across networks" by "encapsulat[ing] the data portion of another protocol so that data can be sent across networks." (Doc. No. 146-5 at ¶70). That meaning is consistent with the use of the term in the disputed claim. Here, the specification provides an example of a tunnel protocol, teaching that "in some examples, safety field devices may be integrated using a tunnel protocol between the safe environment and the associated safety controller such as, for example, PROFIsafe (Profibus safety)." '769 patent at 34:24–27; *see Sonix Tech. Co.*, 844 F.3d at 1378 (explaining that examples "provided guidance and points of comparison for skilled artisans"); (Doc. No. 146-5 at ¶71) (stating that the term of art, especially when supplemented with a concrete example, "would be instantly recognized by a POSITA").

While Defendant argues that the '769 patent does not explain what a "tunnel protocol" means, "[a] patent need not explicitly include information that is already well known in the art."

Presidio Components, Inc. v. Am. Tech. Ceramics Corp., 875 F.3d 1369, 1376 (Fed. Cir. 2017). In light of the specification, the claim term would, with reasonable certainty, inform a person of ordinary skill in the art about the scope of the claim.

This term therefore is not indefinite and no construction is needed.

3. "first information" / "second information" / "communication information"

These terms appear in claims 1, 4-6, 9, 12, 13, 17, 19, and 22 of the '567 patent, and claims 15 and 18 of the '769 patent. Defendant contends that these terms are indefinite because the '567 and '769 patents do not define the terms and the patents do not describe how "first information," "second information," and "communication information" differ from one another. Plaintiffs contend that the terms are sufficiently definite and that no construction is needed. The Court agrees with Plaintiffs.

The '567 patent provides context and guidance that would inform one of ordinary skill in the art what is meant by these claim terms. To begin, the specification makes clear that "information" in the context of the patents effectively means data. The '567 patent specification teaches that "process controller[s] receive[] signals indicative of process measurements made by the field devices and/or *other information* pertaining to the field devices." '567 patent at 1:27–33 (emphasis added). Such information includes, for example, pressure measurement values and voltage levels. *See* '567 patent at 4:41-45.

The Court rejects Defendant's contention, based solely on attorney argument, that a person of ordinary skill in the art would not understand the scope of "first," "second," and "communication" information. It is clear that "first" and "second," when combined with "information," is a naming convention used to distinguish between sequential data types in a given

example. Claim 18 of the '769 patent, for instance, recites that "first information" is received from one field device and "second information" is information received from a second field device. *See* '769 patent at 40:10-24; *see also Free Motion Fitness, Inc. v. Cybex Int'l, Inc.*, 423 F.3d 1343, 1348 (Fed. Cir. 2005) ("[T]he use of the terms 'first' and 'second' is a common patent-law convention to distinguish between repeated instances of an element or limitation."). This distinguishing convention is used throughout these and other patents—for instance, the '567 patent routinely references "first communication protocol" and "second communication protocol." Moreover, the patents readily describe communication information sufficient to inform a skilled artisan of the term's scope. The specification teaches, for example, that to communicate information between the field device and the I/O card, the termination module determines whether it has received communication information. '567 patent at 22:14-18. The termination module "determines whether it has received communication information if the I/O bus communication processor 608 (Fig. 6) or the field device communication processor 620 indicates via, for example, an interrupt or a status register that communication information has been received." *Id.* at 22:19-24. Figures 10A and 10B of the '567 patent illustrate this process through flowcharts.[6]

There is nothing about the patents that render the scope of these terms unclear to one of ordinary skill in the art. Defendant provides nothing more than attorney argument to support its indefiniteness argument, and accordingly fails to meet its burden of proving indefiniteness by clear and convincing evidence. *See Whirlpool Corp. v. Ozcan*, 2016 WL 7474517, at *3 (E.D. Tex. Dec. 29, 2016). The Court determines that these terms are definite and need no construction.

[6]In its response brief, Defendant also disputes for the first time that "third information" is indefinite. However, "third information" does not appear in any of the claims that Defendant identified as indefinite at the claim construction stage. Moreover, as with "first" and "second" information, Defendant fails to meet its burden of proving by clear and convincing evidence that a person of ordinary skill in the art would not understand the scope of this term.

4. "communicatively [coupling / couple] a process control device to a channel";
"communicatively [coupling / couple] the [identified] process control routine to the channel";
"communicatively [coupling / couple] the [identified] process control routine to the channel . . . based on the database query"

These terms appear in claims 1, 7-10, 13-16, and 21-23 of the '875 patent. Defendant contends that these terms are indefinite. Plaintiffs contend that the terms are sufficiently definite and that no construction is needed. The Court agrees with Plaintiffs. Because the analysis of these terms is related, the Court discusses them concurrently.

As to the first and second terms, Defendant in its opening brief argues that the '875 patent is indefinite because it does not explain what a "channel" is. Defendant assumes that it is a physical component, and accordingly argues that the patent fails to explain how the channel could be communicatively coupled to both hardware, a process control device, and software, a process control routine. The Court is unpersuaded by Defendant's arguments. Contrary to Defendant's interpretation of channel, the specification demonstrates that a channel is in fact an intangible computer parameter that is part of a communication hierarchy that helps communicate information between the control module and proper field devices. Figure 2 demonstrates this communication hierarchy, which is comprised of I/O gateways, I/O ports, and I/O channels of I/O ports. *See* '875 patent at Figure 2. As taught in the specification, the I/O gateway, which connects field devices to the workstation, contains I/O ports, which translate information from the field device to the process controller, and vice versa. Where an I/O port processes signals from more than one field device, it may assign different field devices to different I/O channels of the I/O port. *See* '875 patent at 5:24-44; *id.* at 11:20-33. A person of ordinary skill in the art would accordingly understand that a channel is an intangible computer parameter. Such a person would further know that

communicative coupling can occur not just through a physical connection, but also logically via a software association or binding. *See* (Doc. No. 146-5 at ¶¶92-93, 97). Such a person would accordingly understand, as Defendant appears to concede in its response brief, that a process control routine may be readily communicatively coupled to a channel. Similarly, a skilled artisan would understand that a process control device can be communicatively coupled to the channel logically through, for instance, a software association. *See* (Doc. No. 146-5 at ¶97). Defendant provides no evidence, intrinsic or extrinsic, other than attorney argument in contending to the contrary. But of course, "patents are not addressed to lawyers, or even to the public generally, but rather to those skilled in the relevant art." *Nautilus, Inc.*, 572 U.S. at 909 (internal quotation marks omitted). These terms are not indefinite.

As to the third term, Defendant contends that the '875 patent does not explain how to "communicatively coupl[e] the identified process control routine to the channel . . . based on the database query." But the claim, read as a whole, demonstrates to one skilled in the art the clear role the database query plays in communicatively coupling the channel to the process control routine. Claim 1 of the '857 patent, for example, describes obtaining a tag for the process control device, querying a database of process control routines based on the tag to identify a process control routine, and finally communicatively coupling that process control routine identified through the database query to the channel. The Court is unpersuaded that a person of ordinary skill in the art, reading the claims at issue, would not understand the scope of this term.

Defendant fails to meet its burden to prove indefiniteness by clear and convincing evidence. The Court accordingly determines that the claim terms are not indefinite and adopts their plain and ordinary meaning.

5. "module class object"

Claims 1 and 10 of the '875 patent recite a method using, in part, "a module class object to implement the process control routine." Defendant contends that the term "module class object" is indefinite. Plaintiffs argue that the Court need not construe this term, as it carries its plain and ordinary meaning. In the alternative, Plaintiffs argue that, if a construction is necessary the term should be construed as "a software development approach that assigns what are called classes or objects to segments of reusable code."

The '875 patent specification teaches using module class objects to implement the tagging and configuration of field devices in the process control method. This involves associating a field device tag with each input and/or output block of each object. *See* '875 patent at 4:42-5:3. The '875 patent specification further provides:

> Example methods for configuring a set of module objects for process control systems are described in U.S. Pat. No. 7,043,311 entitled "Module Class Objects in a Process Plant Configuration system"; and U.S. patent application Ser. No. 11/537,138, entitled "Methods and Module Class Objects to Configure Equipment Absences in Process Plants," and filed on Sep. 29, 2006. U.S. Pat. No. 7,043,311 and U.S. patent application Ser. No. 11/537,138 are each hereby incorporated by reference in their entireties."

'875 patent at 5:4-13.

In its responsive brief, Defendant concedes that the construction of this term hinges on whether the '875 patent properly incorporates by reference the '311 patent and 11/537,138 patent application. (Doc. No. 175 at 23). Incorporation by reference "provides a method for integrating material from various documents into a host document . . . by citing such material in a manner that makes clear that the material is effectively part of the host document as if it were explicitly contained therein." *Cook Biotech Inc. v. Acell, Inc.*, 460 F.3d 1365, 1376 (Fed. Cir. 2006) (quoting *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000)). "To

incorporate material by reference, the host document must identify with *detailed particularity* what specific material it incorporates and *clearly indicate where* that material is found in the various documents." *Zenon Envtl., Inc. v. U.S. Filter Corp.*, 506 F.3d 1370, 1378 (Fed. Cir. 2007) (emphasis added) (quoting *Cook Biotech*, 460 F3d. at 1376). In making that determination, the applicable standard is whether one reasonably skilled in the art would understand that "the host document describes the material to be incorporated by reference with sufficient particularity." *Id.* (quoting *Advanced Display*, 212 F.3d at 1282); *see also Harari v. Lee*, 656 F.3d 1331, 1334 (Fed. Cir. 2011).

Here, one skilled in the art would understand that the two documents were incorporated by reference with sufficient particularity. The '875 specification clearly identifies the patent and patent application number and title for the two documents in question, and explicitly states that the documents are incorporated by reference. '875 patent at 5:4-12 ("U.S. Pat. No. 7,043,311 and U.S. patent application Ser. No. 11/537,138 are each *hereby incorporated by reference in their entireties*.") (emphasis added). Defendant nonetheless contends that the '875 document does not specify with sufficient particularity *where* the relevant material is found in the referenced documents. However, the '311 patent—which is entitled "Module Class Objects in a Process Plant Configuration System" and which is also owned by Plaintiff Fisher-Rosemount Systems, Inc.—*as a whole* explains the application and operation of module class objects in a process plant configuration system. The '875 patent accordingly explicitly incorporates the '311 patent "in [its] entiret[y]." *Id.* A person of ordinary skill in the art would understand that the '875 patent describes the material to be incorporated with sufficient particularity.[7]

[7]That the '875 patent properly incorporates the '311 patent is sufficient to establish that the disputed claim term, "module class object," is not indefinite. The Court accordingly need not determine whether the patent properly incorporates U.S. patent application Ser. No. 11/537,138, which describes a method of enabling a configuration

The incorporated '311 patent, along with the '875 patent specification, informs with reasonable certainty a person of ordinary skill in the art as to the scope of the '875 patent claims related to module class objects. This term is not indefinite, and the Court adopts the construction, "an approach that assigns what are called classes or objects to segments of reusable code."

6. "the input / output device comprises an input / output slice"

Defendant contends that this term, which appears in claims 2, 11, and 19 of the '875 patent, is indefinite. Plaintiffs argue that the Court need not adopt a construction, as the term carries its plain meaning. In the alternative, Plaintiffs urge the construction, "an input/output unit configured for a particular purpose."

Defendant contends that these claims are indefinite because the '875 patent does not define what an "input/output slice" (an "I/O slice") is or what structural features distinguish it from other components of input/output devices (an "I/O device"). But of course, "patents are not addressed to lawyers, or even to the public generally, but rather to those skilled in the relevant art." *Nautilus, Inc.*, 572 U.S. at 909 (internal quotation marks omitted); *see Carnegie Steel Co. v. Cambria Iron Co.*, 185 U.S. 403, 437 (1902) ("[A]ny description which is sufficient to apprise [steel manufacturers] in the language of the art of the definite feature of the invention, and to serve as a warning to others of what the patent claims as a monopoly, is sufficiently definite to sustain the patent."). Given the technical nature of this term, the Court consults extrinsic evidence in order to understand the meaning of an "input/output device" and "input/output slice" in the relevant art. *See Teva*, 135 S. Ct. at 841. According to Plaintiffs' expert, it is commonly known in the industry that "input/output slices are just input/output devices configured for a particular purpose." (Doc.

engineer to indicate that a portion of a module object is purposefully absent, such that it does not register as an error or failure.

No. 146-5 at ¶124).

The '875 patent's use of I/O slices is consistent with this industry understanding. Figure 1 of the '875 patent, which offers a schematic illustration of an example process control system, shows a wiring cabinet with a plurality of I/O slices. According to the specification, these example I/O slices "are used to translate, marshal, organize, or route signals between the example field devices . . . and one or more of the example I/O ports." '875 patent at 6:1–10. The specification further explains that the example I/O slices "are smart devices that can be programmed with and/or automatically obtain information about a communicatively coupled field device." *Id.* at 6:10-14; *see generally id.* at 6:1-50. In other words, the specification teaches that these I/O slices are devices that are configured for a particular purpose.

Thus, contrary to Defendant's contention, the '875 patent informs, "with reasonable certainty," one skilled in the art about the scope of the claims. *See Nautilus, Inc.*, 572 U.S. at 901. The Court determines that the term is sufficiently definite and adopts the construction that an I/O slice is "an input/output device configured for a particular purpose."

7. "when the input / output port does not correspond to a second input / output port to which the input / output device is connected"

Defendant contends that this term, which appears in claim 16 of the '875 patent, is indefinite. Plaintiffs argue that the term is sufficiently definite and that no construction is needed. The Court agrees with Plaintiffs.

The '875 patent describes methods of configuring a process control system through the use of tags associated with field devices. '875 patent at Abstract. The disputed term in claim 16 describes a step in this method—determining whether device tags match. The claim provides, in part:

A processor coupled to the memory and programmed to:

> Obtain a tag of a process control device from an input/output device, the input/output device to communicatively couple the process control device to ***a*** *channel of a multi-channel input/output port* of a process controller, wherein a configuration associates the tag with ***an*** *input/output port*;
>
> [use the tag to identify a process control routine];
>
> Communicatively couple the process control routine to ***the*** *channel of the multi-channel input/output port*;
>
> Provide an error indicator when ***the*** *input/output port* does not correspond to a second input/output port to which the input/output device is connected.

'857 patent at 17:29-48 (emphasis added). The specification and Figures 5 and 7 explain this step in depth. *See, e.g.*, '875 patent at 3:54-59 ("The I/O gateway is loaded with a configuration that includes for each field device tag an assigned I/O port and/or I/O channel. The downloaded configuration is compared to the sensed field device tags, I/O ports and I/O channels to identify any mismatches.").

Defendant contends that this term is indefinite because claim 16 of the '875 patent provides that a process controller has both a "multi-channel input/output port" and an "input/output port," but it is unclear, at the step in question, which of these two input/output ports gets compared to the "second input/output port" to see if they "correspond." The Court disagrees. Claim 16 uses two different naming conventions to identify "*a* multi-channel input/output port" and "*an* input/output port," and subsequently refers to them as "*the* multi-channel input/output port" and "*the* input/output port." '857 patent at 17:29-48 (emphasis added). The claim language, as demonstrated in the annotated language *supra*, clearly identifies which input/output port is referenced in the disputed term.

Contrary to Defendant's contention, a person of ordinary skill in the art would understand

the scope of this term with reasonable certainty. This term is sufficiently definite and no construction is needed.

D. MEANS-PLUS-FUNCTION CLAIMS

Defendant contends that two of the disputed terms are invalid means-plus-function claims under 35 U.S.C. § 112(f).

1. "processor"

Defendant contends that claims 16 and 20–23 of the '875 patent, which recite a "processor," are governed by § 112(f) and that because the claims lack sufficient structure they are invalid for indefiniteness. Plaintiffs argue that Defendant cannot overcome the presumption against the application of § 112(f) that arises from the lack of the word "means" in the term.

The Court starts with the presumption that § 112(f) does not apply because none of the terms contain the word "means." *Williamson*, 792 F.3d at 1347–49. To overcome this presumption, Defendant must demonstrate that the claim terms "fail[] to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function. *Williamson*, 792 F.3d at 1349. The Court determines that Defendant has not done so, for several reasons.

To begin, as Plaintiffs' expert and courts have noted, a processor generally refers to a tangible object that can be purchased and that can perform certain functions even without specific instructions. *See Smartflash LLC v. Apple Inc.*, 77 F. Supp. 3d 535, 541 (E.D. Tex. 2014); (Doc. No. 146-5 at ¶148–49). Thus, unlike terms such as "means," "element," and "device" that typically do not connote structure, "processor" can on its own recite at least some structure to persons of ordinary skill in the art. *Smartflash LLC*, 77 F. Supp. 3d at 541. Indeed, several courts have held that "processor" can connote structure. *See, e.g.*, *Odyssey Wireless, Inc. v. Apple Inc.*, 2016 WL 3055900, at *11 (S.D. Cal. Mar. 30, 2016) ("The term 'processor' connotes structure."); *Syncpoint*

Imaging, LLC v. Nintendo of Am. Inc., 2016 WL 55118, at *18–20 (E.D. Tex. Jan. 5, 2016) (citing the definition for the word "processor" contained in the IBM Dictionary of Computing); *Smartflash LLC*, 77 F. Supp. 3d at 541 ("Although 'processor' may not define a specific structure, it describes a class of structures.").

Moreover, and importantly, the use of "processor" in the claims at issue further evinces that these claims connote structure and are not written as means-plus-function claims under the ambit of § 112(f). Courts have held that the term "processor" sufficiently connotes structure where the claim describes how the processor interacts with the invention's other components and identifies where the processor is located. *See Finjan, Inc. v. Proofpoint, Inc.*, 2015 WL 7770208, at *10 – 11 (N.D. Cal. Dec. 3, 2015). In *Finjan*, for instance, the court held that the term "content processor" had sufficiently specific structure because the claim described how the "content processor" interacts with the transmitter and receiver, and because the specification explaining "client computer includes a content processor" identified the component's location. *Id.* at *10–11. Similarly, in *Advanced Marketing Systems, LLC v. CVS Pharmacy, Inc.*, the court held that "data processor" connoted sufficient structure because the claims at issue described the physical connections between the data processor and other claim elements through the language, "said data processor being further connected to memory for storing data associated with said transaction." 2016 WL 1741396, at *19 (E.D. Tex. May 3, 2016). Here, the claim terms describe the location of the processor—"[a]n apparatus . . . comprising a processor"—and the interaction between the processor and other components—"a processor coupled to the memory." Based on this claim language, one of ordinary skill in the art would understand the structural arrangements of the claimed processors. Indeed, Plaintiffs' expert confirms that a person of ordinary skill in the art would understand that the term "processor" has sufficiently definite meaning as the name for

structure. (Doc. No. 146-5 at ¶¶147–48, 152); *see Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996) ("What is important is . . . that the term, as the name for structure, has a reasonably well understood meaning in the art."). The term processor is "not used as generic terms or black box recitations of structure or abstractions, but rather as [a] specific reference[]" to processors that are known in the art. *See Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003, 1008 (Fed. Cir. 2018).

Accordingly, the Court rejects Defendant's contention that the claims at issue are means-plus-function claims governed by § 112(f), and determines that these claim terms are not indefinite.

2. "article of manufacture"

Defendant contends that claims 10–15 of the '875 patent, which recite "article of manufacture," are governed by § 112(f) and that because the claims lack sufficient structure they are invalid for indefiniteness. Plaintiffs argue that the phrase "article of manufacture" appears in the preamble of these claims and are not written in a means-plus-function format. The Court agrees with Plaintiffs.

Claims 11-15 are dependent on claim 10, which provides in part:

> An *article of manufacture* storing machine readable instructions that, when executed, causes a machine to:
>
> > Obtain a tag of a process control device from an input/output device . . .
> >
> > Query based on the tag obtained from the input/output device a database of process control routines . . .
> >
> > Communicatively couple the process control routine to the channel of the multi-channel input/output port based on the database query; and
> >
> > Use a module class object to implement the process control routine.

Claim 10 of the '875 patent (emphasis added).

Generally, "a preamble limits the invention if it recites *essential structure* or steps, or *if it is 'necessary to give life, meaning, and vitality' to the claim*." *Saint Lawrence Commc'n LLC v. ZTE Corp.*, 2016 WL 6275390, at *31 (E.D. Tex. Oct. 25, 2016) (second emphasis added) (quoting *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999)). Conversely, "[i]t is well settled that if the body of the claim sets out the complete invention, and the preamble is not necessary to give life, meaning and vitality to the claim, then the preamble is of no significance to claim construction because it cannot be said to constitute or explain a claim limitation." *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1371 (Fed. Cir. 2003).

Here, the Court declines to construe the disputed term as a proper means-plus-function phrase. To begin, the presumption against means-plus-function claiming applies because "means" is nowhere used in the claims. *Williamson*, 792 F.3d at 1347–49. Moreover, and importantly, the phrase is located in the preamble to claim 10, where the preamble is not necessary to "give life, meaning, and vitality to the claim." *Altiris*, 318 F.3d at 1371. Indeed, the claim goes on to recite the exact steps that occur when the machine readable instructions are executed. The Court is not convinced that the disputed phrase is a claim limitation in the first instance, let alone one that can be construed as a means-plus-function limitation. *See Speedtrack, Inc. v. Wal-Mart Stores, Inc.*, 2008 WL 2491701, at *13 (N.D. Cal. June 19, 2008). The Court accordingly rejects Defendant's contention that the claims at issue are means-plus-function claims and determines that these claim terms are not indefinite.

IV. CONCLUSION

The disputed terms in the patents-in-suit are construed as set forth in this Order.

IT IS SO ORDERED.

SIGNED at Houston, Texas, on this the 12th day of December, 2019.

HON. KEITH P. ELLISON
UNITED STATES DISTRICT JUDGE